

## XII. SEVEN NEW MALAYSIAN MAMMALS.

BY C. BODEN KLOSS, F.Z.S.

1. *Balionycteris maculata seimundi* subsp. nov.

Like *B. m. maculata* (Thos.) of Borneo but with the postorbital processes much less developed; short and obtuse instead of pointed and elongated.<sup>1</sup>

Male. Head and nape black, shoulders and mid-back mummy brown; rump and sides cinnamon brown. Underparts hair brown, the fur of the abdomen tipped with drabby white, of the fore-neck very indistinctly with drab. Ears and membranes black; a small tawny spot on the anterior margin of the ear near the base, another near the inner angle of the eye and a pale streak near the angle of the mouth: finger joints tawny and a few small tawny spots scattered irregularly over the wing membranes. The undersurface of the fore limbs and the membranes near the body distinctly clad with whitish hair.

Female. Only differs from the male in having no drab on the fore-neck and less cinnamon brown on the rump.

*Co-types.* Adult male and female (skins and skulls) from the junction of the Taban and Teku Rivers at the foot of Gunong Tahan, Pahang, collected by Mr. E. Seimund on 26 February 1921, F.M.S. Mus., No. 1/21 and 2/21.

*Specimens examined.* The co-types and three alcoholic specimens, viz., a female with a young one and a gravid female: all of which formed a small bunch in the forest.

*Collectors external measurements of male and female:* head and body, 57, 57; forearm, 43, 42; hindfoot, 9, 9; ear, 9, 9 mm.

*Skull measurements:* greatest length, 22.5, 22.4; condylo-basal length, 21.1, 21.1; palatal length, 11.0, 11.2; maxillary tooth row including canine (alveoli) 7.0, 7.0; interorbital breadth, 5.2, 4.8; breadth across postorbital processes, 7.3, 6.5; breadth of braincase, 10.2, 10.0; zygomatic breadth, 15.6, 15.1 mm.

*Remarks.* Until last year the two Cynopterine genera *Balionycteris* and *Dyacopterus* were only known from Borneo where each is represented by a single species, *B. maculata* (Thos.) and *D. spadiceus* (Thos.). In Ann. and Mag. Nat. Hist. (9) V, 1920, p. 284, Mr. Thomas described a race of the latter, *brooksi*, from specimens collected near Bencoolen, Sumatra, by Mr. C. J. Brooks and now we have discovered the former in the Malay Peninsula. We may reasonably expect to meet someday with *Dyacopterus* in the Peninsula and *Balionycteris* in Sumatra.

<sup>1</sup> Cf. Andersen, Cat. Chir. Brit. Mus. I, 1912, p. 655, fig. 55.

2. *Petaurista punctata sumatrana* subsp. nov. (Pl. III).

Like *P. p. punctata* of the Malay Peninsula but much less flecked with white: the spots being almost absent on head, neck, shoulders, rump, thighs and basal part of tail.

Skull generally similar but rostrum broader and shorter: zygomata noticeably broader and more bowed outward anteriorly; but interpterygoid space and basioccipital narrower: toothrows not converging anteriorly.

*Type.* Adult female, skin and skull, from the Padang Highlands, West Sumatra (probably near Fort de Koek). Obtained by E. Jacobson on 29 May 1918. Original number E. J. 398.

*External measurements taken in the flesh:* head and body 345; tail 375; hindfoot 65; ear 29 mm.

*Skull measurements:* greatest length, 62.3 (63.0)<sup>1</sup>; basilar length, 51.0 (50.5); diastema, 13.2 (13.2); upper tooth row, 13.9 (14.0); interpterygoid breadth, 5.1 (6.2); breadth between bullae, 9.0 (11.0); anterior and posterior breadths of combined nasals, 11.4, 7.7 (10.5, 6.9); median length of nasals, 17.0 (19.0); zygomatic breadth, 42.0 (42.0); mastoid breadth, 32.5 (33.0).

*Remarks.* This is the first time this interesting squirrel has been taken in Sumatra. *P. punctata* seems to be a rare animal everywhere. Other forms have been described from S. Yunnan (*marica* Thos.) and the Chin Hills (*sybilla* Thos.). Apparently a mountain species.

3. *Sciurus notatus tamansari* subsp. nov.

Like the animal inhabiting the lowlands of East Java<sup>2</sup> but darker and more richly coloured throughout.

Head, body and limbs above less grey, more olivaceous, the pale parts of the grizzle being ochraceous. Fore and hind feet darker grey, contrasting more strongly with the limbs. Ears and sides of head and neck ochraceous. Underparts darker, nearly ochraceous-orange. Tail more richly coloured both above and below, the lower median line like the under-body.

*Type.* Adult female (skin and skull) from Tamansari, Idjen Massif, 1,600 ft., about 15 miles westwards from Banjoewangi, East Java. Collected on 18 January 1920 by C. Boden Kloss. Original No. 8,634: F.M.S. Mus. No. 34/20.

*External measurements taken in the flesh:* head and body, 200; tail, 185; hindfoot s.u., 45; ear, 18 mm.

<sup>1</sup>Measurements in parentheses those of an adult male from the Larut Hills near Taiping, Perak, 2,100 ft., F.M.S. Mus. No. 1427/11.

<sup>2</sup>To some extent this resembles, as might be expected, *S. n. madurae* Thos. (Ann. & Mag. Nat. Hist. (8), V, 1910, p. 386; Madura Id.).

*Skull measurements* : greatest length, 50.0 ; condylo-basilar length, 43.5 ; palatilar length, 21.5 ; diastema, 12.0 ; upper molar row (alveoli) 11.2 ; median nasal length, 13.0 ; interorbital breadth, 15.5 ; zygomatic breadth, 29.0 mm.

*Specimens examined.* Five from the type-locality compared with eight from Badjoelmati in the lowlands of Besoeki, E. Java.

*Remarks.* This form possibly closely resembles *S. n. stresemanni* Thos. of Bali (Ann. & Mag. (8) XI, 1913, p. 503) ; but it has very conspicuous orbital rings and the head is apparently less ochraceous.

All recent writers on *Sciurus notatus*—Thomas, Bonhote, Robinson and Wroughton—have treated the old names which have been given the species as synonyms of *S. n. notatus* ; and to put matters on a clear footing I select Western Java as the typical locality of *badjing*, Kerr (1792) and *biliniatus* Desm. (1817) : we know that *notatus* Bodd. (1785), *plantani* Ljung (1801) and *andrewsi* Bonh. (1901) came thence. And though *dschinschinus* Gm. (1788) and *gingianus* Shaw (1801) are based on the "Ecuriel de Gingi" of Sonnerat, supposed to have come from Pondicherry, I have little doubt but that they also are *notatus* squirrels. If so—typical locality West Java.

Therefore, of this squirrel, we have in Java at present :—

<i>S. n. notatus</i> (with synonymy as above)	West Java.
<i>S. n. balstoni</i>	Mid Java.
<i>S. n. tamansari</i>	Idjen Massif, East. Java.

All the *notatus* squirrels I have yet seen from West Java are grey-bellied animals, though the axillae and inguinal region are generally buffy or tawny : all the East Javan specimens I have examined are entirely buff or tawny beneath. *S. n. balstoni* from South Mid-Java is described as "below pinkish-buff, but as the hairs have long black bases this colouring is much disguised except on the inner sides of the limbs where the hairs are entirely buff" (Robinson and Wroughton, Journ. Fed. Malay States Mus., 1V, 1911, p. 234. Tjilitjap).

##### 5. *Sciurus nigrovittatus besuki* subsp. nov.

Like *S. n. nigrovittatus* Horsf. of West Java<sup>1</sup> but with the underparts a less clear grey, the tips of the hairs less white being often considerably sullied with buff. Muzzle, sides of head and neck and the chin dull ochraceous, distinctly less intense and bright.

*Type.* Male, vix ad. (skin and skull) from Tamansari, Idjen Massif, 1,600 ft., East Java. Collected on 17 January 1920 by C. Boden Kloss. Original No. 8,629, F.M.S. Mus. No. 29/20.

<sup>1</sup>I select West Java as the typical locality for *S. nigrovittatus* Horsf., and also for *S. griseiventer* Desm.

*External measurements taken in the flesh* : head and body, 182 (185)<sup>1</sup> ; tail, 160 (160) ; hind foot, 41 (43) ; ear, 16 (16).

*Skull measurements* : greatest length, 16.3 (50) ; condylo-basilar length, 39.4 (43) ; palatilar length, 19 (21) ; diastema, 10.5 (12.8) ; upper molar row, alveoli, 9 (9) ; median nasal length, 12.4 (14.5) ; interorbital breadth, 17.2 (17.6) ; zygomatic breadth, 28 (29).

*Specimens examined.* Twelve from the type locality and twenty-two from Sodong Jerok, 4,000 ft., and Ongop Ongop, 5,700 ft., Idjen Massif, East Java, compared with many examples of the typical form from Mid-Java (Karangbolang, East of Schildpadden Baai) and West Java (Mt. Gedeh, 4,000–8,000 ft. ; Wynkoops Baai and Pandeglang).

*Remarks.* The West Javan form of *S. notatus*<sup>2</sup> bears some resemblance to this race in having the ventral surface largely grey, sometimes washed with buffy, and the colour of the underparts is therefore no distinction, broadly speaking, between the two species which are differentiated as follows :—

*S. notatus.*

Pale edges to eyelids distinct.  
Fore and hind feet grey markedly contrasting with limbs and back.  
Tail generally tinged with rufous at tip.  
Pale lateral stripes well defined.  
Dark lateral stripe less distinct and coloured like sides and back.  
Skull narrower.

*S. nigrovittatus.*

No distinct pale edges to eyelids.  
Fore and hind feet scarcely differing from limbs and back.  
Tail generally markedly black at tip.  
Pale lateral stripes less defined.  
Dark lateral stripe black, distinct.  
Skull broader.

The distribution of *S. notatus* and *nigrovittatus* in Java, as experienced by members of the F.M.S. Museums during two collecting visits, may be of interest.

East Java :—

At Badjoelmati, in the lowlands of Besoeki, only *notatus* was met with.

At Tamansari, Idjen Massif, 1,600 ft., both *notatus* and *nigrovittatus* were found.

At Sodong Jerok, 4,000 ft., and Ongop Ongop, 5,700 ft., on the Idjen, only *nigrovittatus* was found.

Mid Java :—

At Karangbolong on the south coast only *nigrovittatus* was met with.

<sup>1</sup> Measurements in parentheses those of an old female from the type locality : Original No. 8,639, F.M.S. Mus. No. 39/20.

<sup>2</sup> Well described by Bonhote under the name of *Sciurus andrewsi* in Ann. & Mag. Nat. Hist. (7), VII, 1901, p. 456 : his type being from Tjigombong, south of Buitenzorg.

West Java :—

At Tjibodas, 4,000 ft., and Kandang Badak, 8,000 ft., Mt. Gedeh, only *nigrovittatus* was obtained.

At Wynkoops Baai were collected both *notatus* (one example) and *nigrovittatus* (many specimens).

In the district of Pandeglang, Bantam, both species were equally common.

#### 6. *Lariscus niobe vulcanus* subsp. nov.

Differs from *L. n. javanus*<sup>1</sup> in having the hairs of the tail tipped with buff or tawny instead of white.

*Type.* Adult male (skin and skull) from Ongop Ongop, Idjen Massif, 5,700 ft., Besoeki, East Java. Obtained on 9 April 1916 by F.M.S. Museum collector. No. F.M.S. 356/16.

*External measurements taken in the flesh :* head and body, 185 ; tail, 115 ; hind foot, 46 mm.

*Skull measurements :* greatest length, 48·5 condylo-basilar length, 40·0 ; palatilar length, 20·0 ; diastema, 12·0 ; upper molar row (alveoli) 9·0 ; median nasal length, 14·5 ; interorbital breadth, 12·0 ; zygomatic breadth, 27·0 mm.

*Specimens examined.* Twelve from the Idjen Massif between 4–6,000 ft., compared with eight examples of *L. j. javanus*.

Seven of the latter come from West Java (Wynkoops Baai and Pandeglang) ; but one is from Tamansari, Idjen Massif, 1,600 ft. : it is therefore probable that *L. j. javanus* is the lowland and sub-montane form throughout the whole of Java.

#### 7. *Rattus bukit temmincki* subsp. nov.

A very dark form of *Rattus bukit* (Bonh.). Considerably duller than *R. b. bukit* of the Malay Peninsula: much duller and darker than *R. b. treubi*<sup>2</sup> of the mountains of Java.

Above mingled mummy-brown and ochraceous-tawny the latter strongest on the sides of the head and neck and flanks : limbs greyer : fore and hind feet white with dark mesial stripes. Dorsal spines greenish grey basally. Below creamy sharply margined and extending to the fore feet, but not to the ankles. Tail bicoloured with a white tip.

*Type.* Adult female (skin and skull) from Badjoelmati, north of Banjoewangi, Besoeki, East Java. Collected on 29 January 1920 by C. Boden Kloss. Original No. 8,676, F.M.S. Mus. No. 76/20. Mammæ 2—2—8.

<sup>1</sup>Thos. & Wr. Abstr., P.Z.S. 1909, p. 19 ; P.Z.S. 1909, p. 389 (Buitenzorg, 855 ft., West Java).

<sup>2</sup>Robinson and Kloss, Ann. & Mag. Nat Hist. (9) IV, 1919, p. 376 (Tjibodas, Mt. Gedeh, West Java, 5,000 ft.).

*External measurements taken in the flesh* : head and body, 140 ; tail, 178 ; hindfoot, s.u., 30·5 ; ear, 21 mm.

*Skull measurements* : greatest length, 35·0 , condylar-basilar length, 28·8 ; diastema, 8·4 ; upper molar row (alveoli) 6·0 ; length palatal foramina, 5·6 ; median nasal length, 12·9 ; breadth combined nasals, 4·0 ; zygomatic breadth, 16·0 mm.

[The largest specimen, a male from Karangbolang measures : head and body, 147 ; tail, 190 ; hindfoot, 28·5 ; ear, 20. Skull : greatest length 36·0 ; zygomatic breadth, 17·5 mm.].

*Specimens examined.* The type, two from Tamansari, Idjen Massif, 1,600 ft., Besoeki ; and two from Karangbolang, east of Schildpadden Baai, Mid Java. Compared with many paratypes from Tjibodas and a large series from Sodong Jerok, 4,000 ft., and Ongop Ongop, 6,000 ft., Idjen Massif, East Java.

*Remarks.* This seems to be the lowland and submontane form throughout Java while *R. b. treubi* is found on the mountains at higher altitudes.

The pelage is much less profuse and is stiffer than in the mountain representative ; but I do not regard this as a racial character for if individuals of the mountain form were transferred to the plains they, or their first offspring, would probably at once assume the more spiny, less furry coat of the lowland animal.